UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
CHOU, ALBERT T

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 May 2009_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-14_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _9-13_ is/are allowed.

6)☒ Claim(s) _1-8 and 14_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _26 May 2009_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's Amendments/Remarks filed on October 30, 2007 have been entered.

Claims 1, 2, 5, 7, 9 and 12have been amended. No claims have been added or

canceled. Claims 1-14 are pending in this application, with claims 1 and 9-12 being

independent.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by

US Patent Application Publication No. 2002/0196784 A1 by Masuda.

Regarding claim 1, Masuda teaches a packet-service scheduling unit **[Figs. 1-2;**

Switching Unit 32], which establishes a data channel connection with one end of a

cross-connecting unit in a digital communication system, for scheduling packet services

from a data service access processing unit and a line unit which establish a data

channel connection with the other end of the cross-connecting unit, comprising:

a de-mapping module **[Fig. 2; VC R-Module 73R; para. 0041]**, for receiving a

virtual container or virtual container group from the cross-connecting unit in the digital

communication system, and to extract an encapsulated data stream from the virtual

container or the virtual container group for completing separation of the encapsulated

data stream therefrom **[Fig. 2; extracts, i.e. decapsulates, a layer-2 frame from the**

STM frame corresponding to an virtually-concatenated channel and detects a

GFP frame mapped in the payload of the STM frame through a de-mapping

process; para. 0041];

a decapsulating module **[Fig. 2; VC R-Module 73R (performing the equivalent**

functions of Fig. 3, GFP R-Module 63R + VC R-Module 64R); para. 0041], for

decapsulating the encapsulated data stream from the de-mapping module into one or

more independent data frames **[Fig. 2; extracts, i.e. decapsulates, a layer-2 frame**

from the STM frame corresponding to an virtually-concatenated channel and

detects a GFP frame mapped in the payload of the STM frame through a de-

mapping process; para. 0041];

a packet scheduling module **[Fig. 2; Packet Switch 74 & Scheduler 76; para.**

0043, 0045], configured with multiple output ports and to receive the decapsulated data

frame from the decapsulating module, read a label from the data frame, determine a

corresponding output port based upon the label, and forward the data frame via the

output port **[Fig. 2; para. 0042-0045]**;

an encapsulating module **[Fig. 2; VC T-Module 73T (performing the equivalent**

functions of Fig. 3, GFP T-Module 63T + VC T-Module 64T); para. 0046], for

receiving the decapsulated data frame forwarded by the packet scheduling module and

to encapsulate the data flame at the Data Link Layer **[Fig. 2; performs a process**

inverse to the decapsulating process as performed by VC R-Module 73R; para.

0046]; and

a mapping module **[Fig. 2; VC T-Module 73T; para. 0047]**, for receiving the

encapsulated data frame and map the data frame to the virtual container or the virtual

container group of the cross-connecting unit **[Fig. 2; para. 0047-0049]**.

Regarding claim 2, Masuda teaches the service scheduling unit further

comprising a fault alarming module for monitoring the service scheduling unit and report

an abnormal status to the cross-connecting unit **[Fig. 2; producing and detecting STM**

alarm indication signals S-AIS; para. 0047].

Regarding claims 3 and 14, Masuda teaches the mapping module and the de-

mapping module are integrated into a mapping/de-mapping module, and the

encapsulating module and the decapsulating module are integrated into an

encapsulating/decapsulating module **[Fig. 2; mapping/de-mapping function of VC**

T/R-Module 73T/R & encapsulation/decapsulation function of VC T/R-Module

73T/R; para. 0041, 0046, 0047].

Regarding claim 4, Masuda teaches pluralities of channels are provided between

the encapsulating/decapsulating module and the mapping/de-mapping module and

between the encapsulating/decapsulating encapsulating module and the packet

scheduling module **[Figs. 1-2; a plurality of internal and external ports interfaces to**

switching unit 32].

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over US

Patent Application Publication No. 2002/0196784 A1 by Masuda in view of US Patent

No. 5,596,730 to Sekine, and further in view of. US Patent Application Pub. No.

2005/0175004 by Russell et al. (hereinafter "Russell")

Regarding claim 5, Masuda does not expressly teach the mapping/de-mapping

module comprises a selection module, and a VC4 mapping/de-mapping and virtual

concatenation processing circuit, a TU3 pointer processing circuit, a VC3 mapping/de-

mapping and virtual concatenation processing circuit, a TU12 pointer processing circuit

and a VC 12 mapping/de-mapping and virtual concatenation processing circuit

connected sequentially, and the selection module is connected with the three virtual

concatenation processing circuits to select one of the three so as to perform scheduling

between the services of the virtual container or the virtual container group with different

granularities.

Sekine teaches a cross-connect system comprises STS-1/DS3 RX/TX

processors 22, 64, mapping/de-mapping circuits 23, 62 and selectors 21, 24, 26, 61, 63,

65 **[Figs. 1-3]**. The selectors, for example, 21, 24 and 26, are connected with STS-1

RCV Processor 22, Demapping Unit 23 and DS3 RCV Processor 25 to select either

STS-1 or DS-3 signal to perform packet processing and/or scheduling **[Figs. 1-3; col. 2,**

line 57 – col. 3,line 2, col. 3, lines 31-57].

Russell teaches a method of transmitting OSI layer 2 data by direct incorporation

into a plurality of synchronous digital hierarchy SDH virtual containers VCs, in which a

higher bit rate OSI layer 2 data frame is multiplexed into a plurality of lower bit rate SDH

(or SONET) virtual containers **[Abstract]**. Russell further teaches that the STM-N

frame forms the basis of the SDH multiplexing scheme as specified in ITU-T

recommendation G.70x, which incorporates a set of different multiplexed data rates in

the range 1.544 MBits/s to 622 Mbits/s and above, the lower bit rates being multiplexed

to higher bit rates according to the SDH hierarchy **[FIG. 2; VC3, VC4, VC12**

mapping/de-mapping, TU3, TU12 tributary unit with pointers indicating the start of

the virtual containers; para. 0047- 0052].

It would have been obvious to a person of ordinary skill in the art at the time of

the invention was made to recognize that schemes of synchronous digital hierarchy

multiplexing are standardized by ITU-T G.70x, and the selections of VC3, VC4, VC12

mapping/demapping, TU3, TU12 tributary unit processing are no more than a choice of

design. Thus, the limitation set forth in claim 5 does not depart from the invention scope

of Masuda, in view of Sekine and further in view of Russell.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US

Patent Application Publication No. 2002/0196784 A1 by Masuda in view of US Patent

Application Pub. No. 2008/0291832 by Bordogna et al. (hereinafter "Bordogna")

Regarding claim 6, Masuda does not expressly teach the

encapsulating/decapsulating module further comprises a GFP CID identifying module,

and for a GFP frame from a different physical channel, finds a CID field in an extension

head in the GFP frame, and forwards the GFP frame directly to a corresponding

physical channel in accordance with a value of the CID field.

Bordogna teaches a GFP mapping function gateway 130 employing a GFP

linear mapping scheme, comprising a GFP CID identifying module, and for a GFP frame

from a different physical channel, finds a CID field in an extension head in the GFP

frame, and forwards the GFP frame directly to a corresponding physical channel in

accordance with a value of the CID field. **[Figs. 1-3; a GFP mapping function gateway 130 utilizes a GFP linear expansion header 300 that is associated with each encapsulated packet. The GFP linear expansion header 300 includes a customer identifier CID to identify the end station that generated the packet based on per port-based interface; para. 0015, 0021-0023]**.

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to use a GFP CID included in the GFP linear expansion header to forward the GFP frame to the corresponding physical channel or port since, since the Generic Framing Procedure GFP is a standard multiplexing procedure (a CID field is defined in the header), defined by ITU-T G.7041, which allows mapping of variable length, higher-layer client signals over a transport network like SDH/SONET.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. 2002/0196784 A1 by Masuda in view of US

Patent No. 5,596,730 to Sekine, and further in view of US Patent Application Pub. No.

2008/0291832 by Bordogna et al. (hereinafter "Bordogna")

Regarding claim 7, Masuda teaches a decapsulating/encapsulating module **[Fig.**

2; VC R-Module 73R/T (performing the equivalent functions of Fig. 3, GFP R/T-

Module 63R/T + VC R/T-Module 64R/T); para. 0041, 0046].

Masuda does not expressly teach the encapsulating/decapsulating module

comprises a first selection module, a second selection module and a plurality of protocol

encapsulating/decapsulating circuits, wherein the first selection module is connected

with the mapping/de-mapping module and selects one of the plurality of protocol

encapsulating/decapsulating circuits, and the second selection module is connected

with the packet scheduling module and selects one of the plurality of protocol

encapsulating/decapsulating circuits, and the plurality of protocol

encapsulating/decapsulating circuits are respectively corresponding to different physical

channels and perform encapsulation/decapsulation for different protocols.

Sekine teaches a cross-connect system comprises STS-1/DS3 RX/TX

processors 22, 64, mapping/de-mapping circuits 23, 62 and selectors 21, 24, 26, 61, 63,

65 **[Figs. 1-3]**. The selectors, for example, 21, 24 and 26, are connected with STS-1

RCV Processor 22, Demapping Unit 23 and DS3 RCV Processor 25 to select either

STS-1 or DS-3 signal to perform packet processing and/or scheduling **[Figs. 1-3; col. 2,**

line 57 – col. 3,line 2, col. 3, lines 31-57].

Bordogna teaches a GFP mapping function gateway 130 utilizes a GFP linear
expansion header 300 that is associated with each encapsulated packet. The GFP
linear expansion header 300 includes a customer identifier CID to identify the end
station that generated the packet based on per port-based interface **[Figs. 1-3; para.
0015, 0021-0023]**.

It would have been obvious to a person of ordinary skill in the art at the time of
the invention was made to modify Masuda's Label Converter 74 (the
decapsulating/encapsulating module) to support multiple framing schemes and to
include selectors as taught by Sekine at both the inbound (from VC R Module 73R) and
the outbound directions (to Packet Switch 75) for selecting the framing schemes
supported by the Label Converter 74. The motivation for combining the reference
teaching would be to enable Masuda's network node the flexibility for supporting
multiple framing schemes based on per-port basis.

Regarding claim 8, Masuda, in view of Sekine and Bordogna, does not expressly
teach the plurality of protocol encapsulating/decapsulating circuits include a GFP
encapsulating/decapsulating circuit, a LAPS encapsulating/decapsulating circuit and an
HDLC encapsulating/decapsulating circuit.

However, it would have been obvious to a person of ordinary skill in the art to
recognize that supporting a GFP encapsulation/decapsulation, a LAPS
encapsulation/decapsulation circuit, or an HDLC encapsulation/decapsulation is only
one of the design choice (Applicant also admits these encapsulation/decapsulation

technique are well known he prior art. See page 12, line19-22 of the Specification).

Thus, the limitation set forth in claim 8does not depart from the invention scope of

Masuda, in view of Sekine and further in view of Bordogna.

Allowable Subject Matter

6.   Claims 9-13 are allowed.

Response to Remarks

7.   In light of Applicant's amendments to Figures 1 and 2, the objection to drawings

have been withdrawn.

8.   Applicant's remarks filed May 26, 2009 regarding the rejection of claims 1-8 and

14 in the application have been fully considered but they are moot in view of new

ground of rejection,

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Albert T. Chou whose telephone number is 571-272-

6045. The examiner can normally be reached on 8:30 - 17:00.

     If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi H. Pham, can be reached on 571-272-3179. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Albert T Chou/
Examiner, Art Unit 2416
July 7, 2009